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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,925	07/17/2003	Andrew Harvey Barr	200308576-1	2574
22879	7590	06/13/2005	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			NORRIS, JEREMY C	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/621,925	Applicant(s) BARR ET AL.	
	Examiner Jeremy C. Norris	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2-10-05</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Oath/Declaration***

The Declaration filed 21 March 2005 has been accepted.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,710,258 (Oggioni).

**Regarding claims 1-7:**

Oggioni discloses, referring to figures 2a-b, a printed circuit board comprising; a first conductive plane (210b); a second conductive plane (210e) substantially parallel to the first conductive plane; a via signal barrel (145) transecting the first and second conductive planes; a first anti-pad (230b) positioned between the first conductive plane and the via signal barrel, the first anti-pad having a first voided area and a first non-voided area (235b); and a second anti-pad (230e) positioned between the second conductive plane and the via signal barrel, the second anti-pad having a second voided area and a second non-voided area (235e). Oggioni does not specifically state that the first voided area does not completely overlap the second voided area [claim 1].

However, Oggioni teaches that when the dielectric layers of the PCB are different thicknesses, each of the "anti-pad" can be individually crafted to achieve the desired impedance matching (see col. 4, line 50 – col. 5, line 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to form the anti-pads in the invention of Oggioni such that the voids do not completely overlap. The motivation for doing so would have been to provide equivalent shielding in layers having different dielectric thicknesses.

Additionally, the modified invention of Oggioni teaches wherein the first conductive plane comprises one of a power plane and a ground plane (see col. 4, lines 40-50) [claim 2], wherein the second conductive plane comprises one of a power plane and a ground plane (see col. 4, lines 40-50) [claim 3], wherein the first and second anti-pads are longer in a first direction than in a second direction (see col. 6, lines 5-10 which states the rings may comprise a polygon, such as a triangle or a rectangle) [claim 4], wherein the first and second anti-pads are partially voided anti-pads [claim 5], wherein the first and second anti-pads are configured for signals through the via signal barrel greater than approximately 2 GHz (see col. 6, lines 1-5) [claim 7].

Regarding the limitation "wherein the first and second anti-pads are configured to maintain board planarity" [claim 6], Examiner notes that this is an intended use limitation and thus only considered to the extent that a potential prior art be capable of performing the claimed function. In the instant case, Applicants' claimed invention and the prior art have the same structural features, therefore it is concluded that the prior art is indeed capable of being used as currently claimed.

**Regarding claims 8-14 and 24-31:**

Oggioni discloses, referring to figures 2a-b, a printed circuit board comprising: a first conductive plane (210b); a second conductive plane (210e) substantially parallel to the first conductive plane; a via signal barrel (145) transecting the first and second conductive planes; a first partially voided anti-pad (230b) positioned between the first conductive plane and the via signal barrel, the first partially voided anti-pad having a

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first pattern and a first orientation; and a second partially voided anti-pad (230e) positioned between the second conductive plane and the via signal barrel, the second partially voided anti-pad having a second pattern and a second orientation. Oggioni does not specifically state that the first orientation is offset from the second orientation [claims 8, 24]. However, Oggioni teaches that when the dielectric layers of the PCB are different thicknesses, each of the “anti-pad” can be individually crafted to achieve the desired impedance matching (see col. 4, line 50 – col. 5, line 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to form the anti-pads in the invention of Oggioni such that the orientations are offset. The motivation for doing so would have been to provide equivalent shielding in layers having different dielectric thicknesses.

Additionally, the modified invention of Oggioni teaches, wherein the first and second patterns are substantially identical [claim 10], wherein the first and second partially voided anti-pads are configured for signals through the via signal barrel greater than approximately 2 GHz (see col. 6, lines 1-5) [claims 11, 31], wherein the first pattern comprises one of a symmetric pattern and an asymmetric pattern [claims 12, 28], wherein the first pattern comprises one of a concentric circles pattern, a radial spokes pattern, and an arbitrary pattern [claims 13, 29], wherein the first pattern comprises a screen pattern (see col. 5, lines 55-60) [claims 14, 27, 30].

Regarding the limitation “wherein the first and second partially voided anti-pads are configured to maintain board planarity” [claims 9, 25], Examiner notes that this is an intended use limitation and thus only considered to the extent that a potential prior art

be capable of performing the claimed function. In the instant case, Applicants' claimed invention and the prior art have the same structural features, therefore it is concluded that the prior art is indeed capable of being used as currently claimed.

Regarding the limitation that "the first and second anti pads are substantially oval shaped [claim 26], although Oggioni does not specifically state that they may be oval, Oggioni does teach that rings may be of various shapes (see col. 6, lines 5-10). It would have been obvious to one having ordinary skill in the art at the time of invention to use an oval shape for the rings in the invention of Oggioni. The motivation for doing so would have been to use a known shape, easily manufactured which can effectively shield the via.

#### **Regarding claims 15-23**

Oggioni discloses, referring to figures 2a-b, a printed circuit board comprising: a first conductive plane (210b); a second conductive plane (210e) substantially parallel to the first conductive plane; a first via signal barrel (125) transecting the first and second conductive planes; a first anti-pad (230b) positioned between the first conductive plane and the first via signal barrel, the first anti-pad having a first length and a first width and a first orientation; and a second anti-pad (230e) positioned between the second conductive plane and the first via signal barrel, the second anti-pad having a second length and a second width and a second orientation. Oggioni does not specifically state that the first orientation is offset from the second orientation [claim 15]. Oggioni does not specifically state that the first orientation is offset from the second orientation [claim 15].

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However, Oggioni teaches that when the dielectric layers of the PCB are different thicknesses, each of the “anti-pad” can be individually crafted to achieve the desired impedance matching (see col. 4, line 50 – col. 5, line 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to form the anti-pads in the invention of Oggioni such that the orientations are offset and/or such that the first length and width are not equal [claim 16] and/or such that the second length and width are not equal [claim 17] and/or such that the first and second lengths are equal and the first and second widths are equal [claim 20] and/or such the first orientation is substantially perpendicular to the second orientation [claim 22]. The motivation for doing so would have been to provide equivalent shielding in layers having specific dielectric thicknesses.

Additionally, the modified invention of Oggioni discloses wherein the first and second anti-pads are configured for signals through the first via signal barrel greater than approximately 2 GHz (see col. 6, lines 1-5) [claim 19].

Regarding the limitation “wherein the first and second partially voided anti-pads are configured to maintain board planarity” [claim 18], Examiner notes that this is an intended use limitation and thus only considered to the extent that a potential prior art be capable of performing the claimed function. In the instant case, Applicants’ claimed invention and the prior art have the same structural features, therefore it is concluded that the prior art is indeed capable of being used as currently claimed.

Regarding the limitation that “the first and second anti pads are substantially oval shaped [claim 21], although Oggioni does not specifically state that they may be oval,

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Oggioni does teach that rings may be of various shapes (see col. 6, lines 5-10). It would have been obvious to one having ordinary skill in the art at the time of invention to use an oval shape for the rings in the invention of Oggioni. The motivation for doing so would have been to use a known shape, easily manufactured which can effectively shield the via.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-31 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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